DOCUMENT RESUME

ED 272 260 JC 860 452

AUTHOR Roberts, Keith J.
TITLE Quantitative Program Evaluation Criteria.
PUB DATE Sep 86
NOTE 12p.; Paper presented at the Annual Forum of the European Association of Institutional Research (8th, Loughborough, England, September 1986).
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Community Colleges; *Evaluation Criteria; *Evaluation Methods; Institutional Research; *Program Effectiveness; *Program Evaluation; *Self Evaluation (Groups); Technical Institutes; Two Year Colleges
IDENTIFIERS *Milwaukee Area Technical College WI

ABSTRACT

The Research, Planning and Development Office of Milwaukee Area Technical College has developed a program evaluation procedure that quantitatively assesses 13 variables considered to be important indicators of program viability. These variables are used in three separate stages of the program evaluation: program monitoring, in-depth program evaluation, and program reduction/discontinuance. Programs demonstrate their success in terms of their responses to 13 clearly defined criterion questions that can be answered with a simple yes or no answer. In addition each criterion is evaluated on a five point Likert Scale using specific quantitative standards. The evaluation procedure focuses on: (1) enrollment rate; (2) graduation rate; (3) graduate placement in appropriate field; (4) employer requests for graduates; (5) advisory committee recommendations; (6) cost per full-time equivalent student; (7) faculty productivity ratio; (8) relation to the college's mission; (9) needs assessment; (10) physical facilities; (11) equipment; (12) enrollment of female, minority, and handicapped students; and (13) availability of the same program from other agencies. Examples of how these criteria are applied are provided. (LAL)

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ED272260

Quantitative Program Evaluation Criteria

Presented at

The Eighth European AIR Forum
Loughborough, England
September 1986

by

Keith J. Roberts, Ph.D.
Coordinator, Research, Planning, and Development
Milwaukee Area Technical College
1015 North Sixth Street
Milwaukee, Wisconsin 53203
U.S.A.
(414)278-6816

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QUANTITATIVE PROGRAM EVALUATION CRITERIA

Multi-campus colleges and universities with diverse programs require certain agreed upon criteria for evaluating programs. Once these criteria are established, it is possible, in most cases, to develop quantitative measures to describe these criteria for each program. This paper is a presentation of just such a procedure developed and implemented at a large urban two-year technical college in the U.S.A.

The Milwaukee Area Technical College has been evaluating programs and responding to changing job needs as a result of the change in the business and industrial mix in the industrial Midwest. The Research, Planning, and Development Office of the College developed a program evaluation procedure that quantitatively assessed thirteen variables that were considered by faculty, administrators, trustees, and business leaders to be important indicators of program viability. These variables are used in three separate stages of the program evaluation:

1. Program Monitoring: All programs in the College are examined for enrollment rate, graduation rate, graduate placement, employer requests, cost per FTE, faculty productivity, relationship to the college mission, and the number of female, minority, and handicapped enrolled. This is to determine if there are any programs that require an in-depth evaluation or other special attention.

2. In-depth Program Evaluation: Each year 20% of the programs are identified for an in-depth evaluation. This is done on a rotational basis to insure that no in-depth evaluation is over five years old. This in-depth evaluation uses all of the program monitoring statistics plus advisory committee recommendation, a needs assessment, an examination of the physical facilities, equipment, and the availability of the program from other agencies. This and other information is presented to a program evaluation committee of faculty and college administrators by the program faculty. The committee evaluates both the data and the faculty presentation and makes recommendations to be implemented in the College's strategic planning process.

3. Program Reduction/Discontinuance: Although all thirteen criteria are used in the in-depth program evaluation process, only four criteria (weighted) are used to determine program reduction or discontinuance. These four and their weights are: five-year average enrollment (x4), five-year average graduation rate (x2), five-year average placement rate (x3), and long-term outlook (x1).

PART I

CRITERION REFERENCED EVALUATION

The program evaluation committee endorsed the concept of criterion referenced evaluation to give every program the opportunity to succeed by meeting thirteen clearly defined criterion questions that can be

answered by a simple yes or no. These thirteen criteria and their questions are as follows:

1. Enrollment rate: Is the enrollment rate at 80% or more of capacity?

2. Graduation rate: Is the graduation rate 25% or greater?

3. Graduate placement in appropriate field: Are 70% or more of the graduates placed in a related field?

4. Employer requests: Do the number of job requests equal or exceed the number of graduates?

5. Advisory committee recommendations: Has the advisory committee met during the last 12 months and recommended continuance of this program?

6. Cost per FTE: Is the cost per FTE 200% of the College cost per FTE or less?

7. Productivity ratio: Is the faculty productivity ratio 50% of the College average or greater?

8. Relation to the College mission: Is the program consistent with the College's current mission?

9. Needs assessment: Is the curriculum meeting the current needs of employers as shown by our survey?

10. Physical facilities: Are the physical facilities adequate for program objectives?

11. Equipment: Is the equipment adequate for program objectives?

12. Enrollment of female, minority, and handicapped: Does the program enroll at least 20% female, minority, or handicapped?

13. Availability of program from other agencies: Will the elimination of the program seriously damage the supply of skilled workers in Metropolitan Milwaukee?

Each program is placed in a category based upon the number of "yes" responses to the above questions. The categories are as follows:

Category I: Acceptable, 12-13 yes responses
II: Acceptable with some deficiencies, 10-11 yes responses
III: Weak, 8-9 yes responses
IV: Must be improved, 7 or less yes responses

PART II

FIVE POINT LIKERT EVALUATION

In addition to the simple "yes" and "no" questions, each criterion is evaluated on a five point likert scale using specific quantitative standards. These are shown as follows:

1. Enrollment Rate (ratio of actual enrollment to slots available)

   Examine the enrollment rate over the last five years. This will establish a trend. If the trend is positive, add 1 to the evaluation, if it is negative, subtract 1 from the evaluation. Rate the enrollment as follows:

Enrollment Rate	Rating
80 - 100%	4
60 - 79%	3
40 - 59%	2
0 - 39%	1

   Example: A program with a positive enrollment rate trend and an enrollment rate of 68% would receive 1 point for the positive rate and 3 points for being between 60 - 79%, for a total rating of 4. This program would still be checked as no because the enrollment rate was not 80% of capacity.

2. Graduation Rate (the percent of students starting a program who actually graduate)

   Examine the graduation rate over the last 5 years. Rate as follows:

Graduation Rate	Rating
80 - 100%	5
60 - 79%	4
40 - 59%	3
20 - 39%	2
0 - 19%	1

   Example: A program with a five-year average graduation rate of 29% would receive a rating of 2, but would be checked yes because the graduation rate was greater than 25%.

3. Graduate Placement in Appropriate Field

   Examine the six-month student follow-up reports over the last 5 years to determine placement rate. Rate as follows:

Placement Rate	Rating
90 - 100%	5
80 - 89%	4
70 - 79%	3
60 - 69%	2
50 - 59%	1

Example: A program with a five-year average placement rate of 85% would receive a rating of 4 and would be checked yes because more than 70% were placed in a related field.

4. Employer Requests/Labor Market Information

Examine the number of employee requests for graduates of the program and compare these requests to the number of students graduating. Rate as follows:

Percent of Class Size	Rating
200% and over	5
150 - 199%	4
100 - 149%	3
50 - 99%	2
0 - 49%	1

Example: A program with 10 graduates and 6 job requests would have a job request rate of 60% and therefore a rating of 2 and would be checked no because this rate is less than 99%.

5. Advisory Committee Recommendations

The program advisory committee must meet within the 12 months prior to the program evaluation and make recommendations concerning the continuance of the program. Rate as follows:

Advisory Committee Action	Rating
Advisory committee members employ graduates of the program and recommend it highly.	5
Advisory committee members either employ graduates or recommend the program highly.	4
Advisory committee members recommend a few improvements in the program.	3
Advisory committee members recommend several improvements in the program to bring it up to their standard.	2
Advisory committee members recommend discontinuance of the program.	1

The advisory committee will vote YES or NO on the continuance of the program.

Example: A program whose advisory committee recommended a few improvements and voted to continue the program would receive a rating of 3 and be checked yes.

6. Cost per FTE

Examine the cost per FTE as shown in the most current NCHEMS report and compare this cost to the district-wide average for the same year. (Compare day programs to day averages and evening programs to evening averages and then average the ratings). Rate as follows:

Percent of District-Wide Average	Rating
Less than 100%	5
101-150%	4
151-200%	3
201-250%	2
Greater than 250%	1

Example: A program with a cost per FTE of $3,542.20 will have the following percentage and rating:

$$\frac{3,542.20}{2,323.56} = 152\%$$ Rating of 3

The cost is less than 200% of the district average and is therefore checked as yes.

7. Productivity Ratio

Examine the productivity ratio as shown in the most current NCHEMS report and compare to the district-wide average for the same year. Rate as follows:

Percent of District-wide Average	Rating
Greater than 200%	5
100-199%	4
50- 99%	3
25- 49%	2
Less than 25%	1

Example: A program with a productivity ratio of 404.28 when the district average is 368.34 will have the following percentage and rating:

$$\frac{404.28}{368.34} = 110\%$$ Rating of 4

The ratio is greater than 50% and is therefore checked as yes.

8. Relation to MATC Mission

Examine the program and place it under one of the five mission statements of our school. If it cannot be placed under one of the mission statements, check no on the evaluation worksheet. Evaluate as follows:

Mission	Rating
Vocational and technical education for entry into the job market.	5
Training and upgrading which is necessary for advancement or competence in a vocational and technical skill.	4
Remedial or special education which may be a prerequisite to vocational training or employment.	3
Courses that enable students to continue their education at other institutions.	2
Opportunities for personal, civic, and cultural enrichment.	1

(Note: These are the priorities established by the MATC Board in the Strategic Planning Statement.)

Example: An Associate Degree program would be rated 5 because its mission is "Vocational-technical education for entry into the job market." It would be checked yes because it satisfies a mission of the school.

9. Needs Assessment

Examine the results of a survey of 15 to 25 employers recommended by the advisory committee. The survey will be constructed so that the results can be rated from 1 to 5. It will also have a category to check yes or no relative to the needs assessment. If 80% of the respondents check "yes" then the yes will be checked on the worksheet.

Example: A program with a combined rating of 3.8 and 17 out of 20 respondents checking yes will be given a rating of 4 (3.8 rounded) and will be checked yes (17 out of 25 is 85%).

10. Physical Facilities

Examine the physical facilities using the physical facilities worksheet. (This activity can be delegated to someone knowledgeable about the specific program needs). Rate as follows:

> The physical facilities worksheet will generate a combined rating from 1 to 5 to describe the adequacy of the physical facilities. This combined rating is rounded to the nearest whole number and used as the rating on the program evaluation worksheet. This category will be checked yes if the physical facilities worksheet is checked yes.

Example: A program with a physical facilities worksheet combined rating of 3.4 and a yes check on the physical facilities worksheet will be given this rating: 3.4 is rounded to 3 and the program evaluation worksheet is checked yes because the physical facilities worksheet was checked yes.

11. Equipment

Examine the equipment using the equipment worksheet. (This activity can also be delegated to someone knowledgeable about the specific equipment needs of the program). Rate as follows:

> The equipment worksheet will yield from 1 to 5 checks in the yes column. The number of yes checks will be sued as the rating on the program evaluation worksheet. This category will be checked yes on the program evaluation worksheet if 3 of the 5 categories are checked yes on the equipment worksheet.

Example: A program with 4 yes checks on the equipment worksheet will be given a rating of 4 and will be checked yes because more than 3 items are checked yes.

12. Impact on Target Population

Examine current enrollment by sex and race to determine percentage in target population (female, minority, disadvantaged, handicapped). Evaluate as follows:

Percentage of Target Population	Rating
40% or greater	5
30 - 39%	4
20 - 29%	3
10 - 19%	2
less than 10%	1

Example: A program with 26% enrollment from the target population would be rated 3 and be checked yes.

13. Availability of Programs from other Agencies

Survey other schools and agencies in the district to determine if this program is available from other sources. Evaluate follows:

	Rating
No other programs offered.	5
Program offered that is 1/3 the size of our program.	4
Program offered totaling more than 1/3 the size of our program but not greater than ours.	3
Program offered totaling more than our program.	2
Program offered totaling twice as many as our program.	1

If the elimination of the program will seriously damage the supply of skilled workers in metropolitan Milwaukee, check yes.

Example: A program that graduates 12 per year and is similar to a program at MSOE graduating 15 per year would be rated 2. If both of these programs are needed to supply skilled workers, yes would be checked.

These likert ratings assign a value representing the overall quality of the program. The ratings range from 1 to 5 and are evaluated as follows:

Excellent	4.50 - 5.00
Good	3.75 - 4.49
Fair	3.00 - 3.74
Poor	2.50 - 2.99
Very Poor	2.49 or less

PART III

PROGRAM REDUCTION/DISCONTINUANCE CRITERIA

Program reduction or discontinuance are determined by weighing three of the program evaluation criteria and determining a long-term outlook for a program based upon employer requests, projected new hires in two and five years, current labor market and other demographic information. This information has been gathered for forty-two of the programs and is presented in Table 1. A sample of the program reduction/discontinuance data for Chemical Technology is shown in Table 2.

TABLE 1

Rank Order of Weighted Rating of Four Criteria
(Enrollment, Graduation, Placement, Job Outlook)

Rank Order	Course Title	Weighted Rating
1	Jewelry Service and Sales - D (1986)	4.5
2	Cosmetology - D	4.4
3.5	*Nursing Assistant - C	4.3
3.5	Child Care and Development - AD	4.3
6.5	Chemical Technology - AD (1986)	4.2
6.5	Dental Assistant - D (1986)	4.2
6.5	Medical Assistant - D	4.2
6.5	Respiratory Therapy - AD	4.2
9	Marketing Management - AD (1986)	4.1
10	Dental Hygiene - AD	4.0
11	Radiography - AD (1986)	3.9
12.5	Tool and Die Making - D	3.8
12.5	Interior Design - AD	3.8
15	Administrative Assistant - Secretarial - AD (1986)	3.6
15	Electricity - D	3.6
15	Food Preparation Assistant - D (1986)	3.6
17.5	*Horology - D	3.5
17.5	Shoe Servicing - D (1986)	3.5
20	*Alterationist/Tailoring - D	3.4
20	Dental Laboratory Technology - AD	3.4
20	Metallurgical Technology - AD	3.4
22	Air Conditioning and Refrigeration Technology - AD	3.3
23.5	*Health Unit Clerk - C	3.2
23.5	*Pharmacy Technical Aide - D	3.2
26	*Air Conditioning, Refrigeration, and Heating - C	3.1
26	Aboriculture/Urban Forestry - D	3.1
26	*Baking - D	3.1
28	Electronics Servicing - D (1986)	3.0
29	Combustion Engines Servicing - D	2.9
30	*Machine Molder/Loose Molder - C	2.8
33.5	*Airframe/Powerplant Mechanic - D	2.7
33.5	Appliance Servicing - D (1986)	2.7
33.5	Mechanical Drafting - D (1986)	2.7
33.5	*Welding Technology - AD	2.7
33.5	*Structural Technician - AD	2.7
33.5	*Architectural Technology - AD	2.7
37.5	Combustion Engines Technology - AD (1986)	2.5
37.5	*Public Works Technician - AD	2.5
40	Environmental Health/Water & Wastewater Tech - AD (1986)	2.4
40	*Hydraulics-Pneumatics - D	2.4
40	Occupational Music - AD	2.4
42	*Bricklaying and Masonry - D	2.1

*Programs identified in Master Plan for possible reduction/discontinuance

D - Diploma C - Certificate AD - Associate Degree

TABLE 2

Reduction/Discontinuance Summary (1986)

Program Number: (10)6-03:1
Program Name: Chemical Technology

	Rating	Weight	Weighted Rating
5-Year Average Enrollment Capacity:	4	x 4	16
5-Year Average Graduation Rate:	3	x 2	6
5-Year Average Placement Rate:	5	x 3	15
Long-Term Outlook:	5	x 1	5
		Total	42
	(T/10) Total Weighted Rating		4.2

Average graduating class size: 9

Long-Term Outlook was determined as follows:

A. Are the number of employer requests at least equal to the graduating class size? yes

B. Are the number of projected new-hires in two years greater than the average graduating class size? yes

C. Are the number of projected new-hires in five years greater than the average graduating class size? yes

D. Are the number of people currently employed 10 times greater than the average graduating class size? (according to our survey) yes

E. Any additional information. Survey indicates a continued demand for qualified graduates

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